Revision Test 51B

1 a) Term x^3 : $+5x^3$, $-3x^3$

Term x^2 : $+4x^2$, $+7x^2$

Term x : $-6x$, $-2x$, $+8x$

Constant term : $+6$, $+14$

$(4x^2+5x^3-6x+8x-2x+7x^2+6-3x^3+14)$

$= 2x^3+11x^2+20$

b) $(6x^2y-8xy+4-5x^2y+7x^2-4xy-11x^2-45)$

Term x^2y : $6x^2y$, $-5x^2y$

Term x^2 : $+7x^2$, $-11x^2$

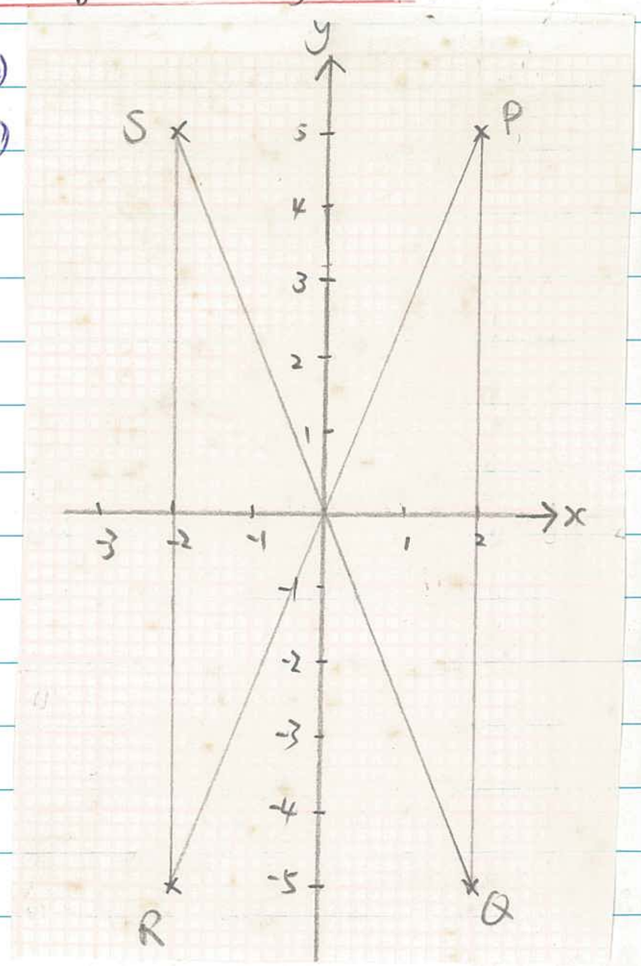
Term xy : $-8xy$, $-4xy$

Constant term : $+4$, -45

$= x^2y-11x^2-12xy-41$

3 a)

b)

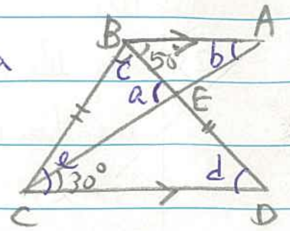


c) SR and PQ are parallel to each other.

d) The point of intersection is (0, 0)

6a) Let ∠BEC be a

∠BAE be b



$b = 30°$ (alt. ∠s, AB//CD)

$a = 50° + b$ (ext. ∠ of △)

$a = 50° + 30°$

∠BEC $= a = 80°$

6b) Let ∠EBC be c

Let ∠BDC and ∠BCD

be d and e

$d = 50°$ (alt ∠s, AB//CD)

∴ $d = e = 50°$ (base ∠s, isos △)

$c + d + e = 180°$ (∠s sum of △)

$c = 180° - 50° - 50°$

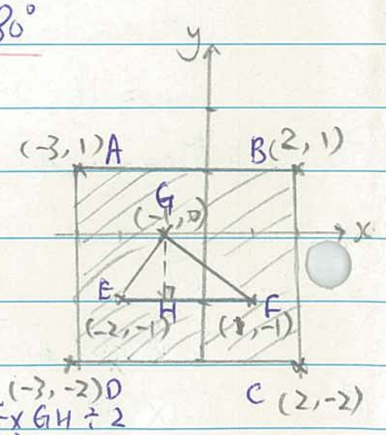
∠EBC $=$ $c = 80°$

8 a)

The shaded area

= area of ABCD

− area of △EFG



$= BC \times CD - EF \times GH \div 2$

$= (1-(-2)) \times (2-(-3)) - [(1-(-2)) \times (0-(-1))] \div 2$

$= (3 \times 5) - (3 \times 1) \div 2$

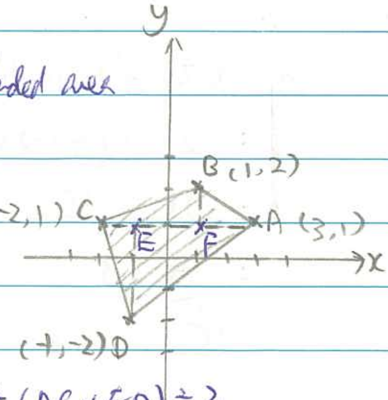
$= 15 - 1.5$

$= 13.5$ unit^2

8b) Area of the shaded area

= area of ABC

+ area of ACD



$= (AC \times BF) \div 2 + (AC \times ED) \div 2$

$= [3-(-2)] \times (2-1) \div 2 + 5 \times (1-(-2)) \div 2$

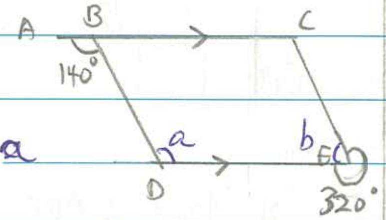
$= 5 \times 1 \div 2 + 5 \times 3 \div 2$

$= 2.5 + 7.5$

$= 10$ unit^2

14a) Find ∠BDE

Let ∠BDE be a



$a = 140°$ (alt. ∠s, BC//DE)

b) Prove that BD//CE

Proof:

$320° + b = 360°$ (∠s at a pt.)

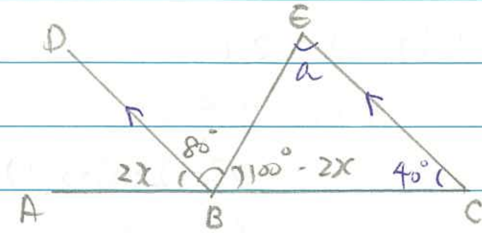
$b = 360° - 320°$

$b = 40°$

∵ $b + a = 140° + 40° = 180°$

∴ BD // CE (int. ∠s are supplementary)

15a)



Proof:

$2x + 80° + 100° - 2x$

$= 80° + 100°$

$= 180°$

ABC is a straight, since the sum of all adj. ∠s are 180°

15b) Let ∠BEC be a

∴ $a = 80°$ (alt. ∠s, DB//EC)

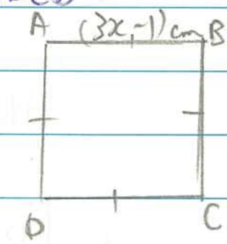
$a + 100° - 2x + 40° = 180°$ (∠s sum of △)

$80° + 100° + 40° - 180° = 2x$

$2x = 40$

$x = 20°$

19a) Perimeter of square ABCD :



$= (3x-1) \times 4$

$= 12x - 4$ cm

b) Area of EFGH :

$= [(2x+1) \times 3x]$

$= (6x^2 + 3x)$ cm^2

c) $(12x - 4) = [(2x+1) + 3x] \times 2$

$12x - 4 = (5x + 1) \times 2$

$12x - 4 = 10x + 2$

$2x = 6$

$x = 3$

(19 d) $x = 3$ cm

Area of ABCD

$= (3\times3-1)\times(3\times3-1)$

$= 64\ cm^2$

Area of EFGH

$= (2\times3+1)\times3\times3$

$= 7\times9$

$= 63\ cm^2$

∴ The difference in area is

$64 - 63$

$= 1\ cm^2$

or $(3x-1)^2-(2x+1)3x = 9x^2-6x+1-6x^2-3x$

$=(3x^2-9x+1)\ cm^2$

22 $\boxed{B}$

$1-y+2y^2$ (ascending order)

23. $\boxed{A}$

✓ I. $5x^2$, $\frac{1}{2}x^2$ and $3x^2$ are like terms

✗ II. $\frac{6x^3y}{x} = 6x^2y$, $2x^2y$ are like terms

✗ III. The degree of $3x(2x^2-x^2y-y^2)$

$= 6x^3-3x^3y-3xy^2$

the highest degree is $-3x^4y = 4$

24. $\boxed{D}$

A. $EF = 7-2=5$

B. $KL = 1-(-4)=5$

C. $MN = 7-2=5$

D. $PQ = 9-6=3$

PQ have a different distance

25) Ratio of boys to girls

$= 25 : 40-25$

$= 25 : 15$

$= 5 : 3$

$\boxed{A}$

26) $30 km/h : 20 m/s$

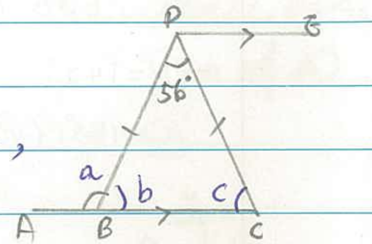
$= 30\times1000 \div 60\times60 : 20$

$= \frac{30\times1000}{360\times60} : 20$

$= 25 : 60$

$= 5 : 12$

$\boxed{D}$



31. Find ∠ABD

Let ∠ABD be a,

∠BDC be b

and ∠DCB be c

$b = c$ (base ∠s, isos. △)

$56° + b + c = 180°$ (∠s sum of △)

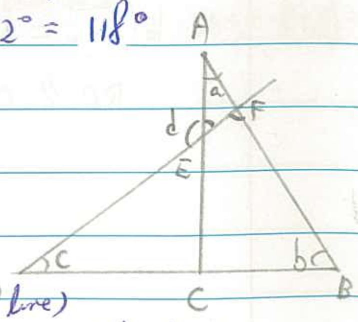
$2b = 180° - 56°$

$b = 124 \div 2 = 62°$

$a + b = 180°$ (adj. ∠s on a st. line)

$a = 180° - 62° = 118°$

$\boxed{B}$



34. Extend DE to F

$\angle FEA = 180° - d$ (adj ∠s on a st. line)

$\angle BFD = 180° - d + a$ (ext ∠ of △)

$c + b + (180° - d + a) = 180°$ (∠s sum of △)

$c + b + a - d = 0$

$d = a + b + c$ $\boxed{B}$